

We claim:

1. An improved injection device for self-administering vaccine injections painlessly to a patient, comprising:

- a housing having a base portion; a needle positioned within the housing, the needle having an injection end having an outside diameter greater than 0.20 mm and less than about 0.38 mm, and being configured for extension to a position wherein the injection end extends through and beyond the base portion; a reservoir for the vaccine; and a means for liquid communication between the reservoir and the injection needle;

- a separable base associated with the base portion, comprising an adhesive on a skin-facing surface thereof and an opposed surface, and

- a means for separably affixing the separable base with the base portion.

2. The device according to Claim 1 wherein the separable base can be re-affixed to the base portion after separation.

3. The device according to Claim 1 wherein the separable base further comprises a adhesive flap extending from a periphery of the separable base, the flap having an adhesive on a skin-facing surface thereof, whereby the flap provides securement of the separable base to the skin of the patient.

4. The device according to Claim 3 wherein the adhesive flap extends from the entire periphery of the separable base.

5. The device according to Claim 1 wherein the means for separably affixing the separable base to the base portion can comprise: a mechanical securement, an adhesive securement, and a magnetic securement, of the separable base with the housing.

6. The device according to Claim 1 wherein the means for seperably affixing comprises at least one engagement in the opposed surface of the separable base; and at least one engaging member extending from the base portion of the housing; wherein the engaging member has a first position associated with the engagement wherein the removable base is secured to the

housing, and a second position associated with the engagement wherein the removable base is not secured to the housing.

7. The device according to Claim 6 wherein the removable base has a slot in the opposed surface, wherein the engaging member has a latch whereby the latch engages the slot in its first position, thereby securing the separable base to the housing, and wherein the engaging member can be biased to the second position wherein the latch is not engaged with the slot, thereby unsecuring the separable base to the housing.

8. The device according to Claim 6 wherein the engaging member has a button affixed thereto configured to accept a biasing force from outside the housing (preferably, through an opening within the housing), which biases the latch of the engaging member to its second, unsecured position.

9. The device according to Claim 1, further comprising a means for retracting the injection needle whereby the injection end of the needle is retracted from its extended position to a position within the housing.

10. The device according to Claim 9 wherein the retracting means comprises a means for moving a needle insertion securement from a first position wherein the needle is secured in its extended position, to a second position wherein the needle is not secured in its extended position, and a needle retraction means for biasing the needle toward a position within the housing, whereby when the needle is not secured in its extended position, the needle is retracted to its housing position, wherein the injection end of the needle is positioned within the housing.

11. The device according to Claim 10 wherein the engaging member can not be biased to its second position unless the needle is at its housing position, thereby preventing the injection end of the needle from being extended beyond the base portion of the housing when the separable base is removed from the housing.

12. An improved device for injecting at least two vaccines to a patient, comprising:

- a housing having a base for semi-permanent attachment to the skin of a patient,

- at least two injection needles disposed substantially perpendicular to the base and within the housing, each needle having an injection end and having an outside diameter greater than 0.20 mm and less than about 0.38 mm, and being configured for axial movement between a first position wherein the injection end is within the housing and a second position wherein the injection end extends outwardly from the base, and
 - at least two reservoirs configured for liquid communication with the injection needles,
 - a means for inserting each injection needle to its second position,
 - a means for injecting the vaccine from the reservoir to the injection end of the needle,
- and
- optionally a means for retracting each needle.

13. The device according to Claim 12 wherein the at least two needles are inserted simultaneously to their second position.

14. The device according to Claim 12 wherein the means for inserting the injection needles are manually powered.

15. The device according to Claim 12 wherein the vaccine for each needle is injected simultaneously to the injection end of the needle.